

# ACO Building Drainage

## Commercial kitchens

Uniclass L21725	
CI/SfB (52.9)	

Grease management



*Product catalogue*

**Grease separators - EN1825**

**Below ground**



### ACO Building Drainage

Our built environment is becoming ever more complex. Applications are becoming more sophisticated and the increasing pressure of regulations and standards makes achieving design, performance and financial goals ever tougher.

Our mission: to eliminate design risk, to reduce installed and life cost and to deliver exceptional finish and performance in every product application.

Our global resources and fabrication capacity make it possible for us to deliver best value, both with our standard products and with our bespoke designs. Confidence is further assured with quality systems that are in accordance with ISO 9001-2008.

ACO Building Drainage is a division of ACO Technologies plc and part of the worldwide ACO Group. The Group has sales in excess of £700 million worldwide with production facilities in the UK, Germany, France, Switzerland, Denmark, Spain, Poland, Czech Republic, Australia and the USA. In total more than 4,000 people are employed in over 40 countries throughout the world.

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- A complete pricing service to merchants, contractors and clients.

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- Detailed design and 'Value Engineering' advice.
- Hydraulic calculations and AutoCAD drawings.

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- For all product brochures, imagery or merchandising material requests.



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- Stainless Steel and Galvanised steel Channels
- Stainless Steel Gullies
- Pipe System
- Roof / Balcony Drainage
- Wetroom & Shower Drainage



#### clean:

- Grease Management Systems



#### hold:

- Anti-flood Backflow Protection Systems



#### release:

- Lifting Stations

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## Below ground grease separator:

### Principles and function

The functioning of the grease separators is based on physics. Density difference between fats, oils, grease (FOG) and water in combination with gravity make the FOG rise to the surface. The same forces make the solids sink to the bottom of the separator.



### BS EN 1825

BS EN1825 is a European standard specifying definitions, nominal sizes, principle of design, performance requirements, making, testing and quality control of grease separators. the standard applies to separators for the separation of grease and oils of vegetable and animal origin from waste water by means of gravity without any external energy.

### Separator materials

ACO below ground separators are made from polyethylene (PE).

Benefitting from corrosion-resistant polyethylene construction, ACO offers a 50 year warranty on the product stability. The warranty is valid providing that the separator is installed, commissioned and maintained according to manufacturer's instructions.

The polyethylene separator is light, making it easy to transport and install. Polyethylene is an environmentally friendly material as it can be reused following decommissioning of the separator.



### Separator Top Section

Provides safe access to the grease separator. There are 3 different top sections. For load class A15 and B125 each one has fixed dimension and 2 raising sections each covering a certain height range. The raising sections can be cut to the exact height as required.



A D400 load class top section contains a raising section, cover and adapter plate (where there is no supporting surfaces). To achieve D400 load class a simple load distribution slab is required (for further details please contact ACO)

## Disposal

All grease separators require maintenance to remove waste once the separator is full. The LipuMax range of separators need to be emptied completely.

### Disposal via inspection cover



The waste water is removed from the separator using a suction pipe inserted into the separator by opening the inspection cover. Odours can escape from the separator when emptied out via inspection cover.

### Disposal via direct suction



For direct suction the separator can be executed with a suction pipe. The suction pipe should be extended to an accessible location for the disposal tanker and fitted with an appropriate connector. The sealed connection limits/prevents the escape of unpleasant odours during emptying.

### Grease level sensor

An optional grease level sensor warns the user that the grease separator needs emptying.



## Cleaning

Cleaning the separator is part of the maintenance procedure.

Cleaning has 2 functions:

1. Cleans the inside wall of the separator.
2. Facilitates suction of the waste by breaking up and liquefying the grease layer.



### Cleaning via inspection cover



The separator is cleaned manually through the inspection cover using a water hose. Odours can escape.

### Manual high pressure cleaning



A manually operated, high pressure cleaning system inside the separator, can clean the internal walls of the separator without the need to remove the inspection cover, preventing escape of odours.

### Automated high pressure cleaning



A programmable, automated, high pressure cleaning system removes FOG and sediment from the internal walls of the separator. The program provides for a cleaning and filling cycle using a factory setting, which can be re-programmed to suit the customer's need. There is no need to remove the inspection cover.

## Filling

Once the separator is cleaned it needs to be filled with fresh water.

### Filling via inspection cover



Separator filling via open inspection cover give odours the chance to escape.

### Manual filling device



A manually operated filling device removes the need to open the inspection cover.

### Automatic filling device.



An automatic filling device is executed with a solenoid valve, which is operated from the control panel. Filling becomes part of the cleaning process.

## Product selection

There are 4 stages in the ACO below ground separator indicating features and level of automation:

		Basic	Stage 1	Stage 2	Stage 3
Disposal – via inspection cover		✓	-	-	-
Disposal – manual direct suction		-	✓	✓	✓
Cleaning – via inspection cover		✓	✓	-	-
Cleaning device – high pressure manual		-	-	✓	-
Cleaning device – high pressure automatic		-	-	-	✓
Filling – via inspection cover		✓	✓	-	-
Filling device – manual		-	-	✓	-
Filling device – automatic		-	-	-	✓

## Separator selection Process

### Stage 1

#### Consider waste water contents

Although all separators accommodate silt, it is often necessary to remove coarse particles which might otherwise cause problems, for example fish waste, which will putrefy if allowed to enter the separator. Such waste can be removed by use of pre-strainer (e.g. see page 17).

**Note:** Gravity Grease Separators are not designed to accommodate output from macerators.



### Stage 2

#### Establish separator size

BS EN 1825 describes 3 methods of calculating the nominal size (NS) of a grease separator:

- Per kitchen equipment and type
- Per quantity of meals
- Per meat processing unit

Sizing methods contained in this product catalogue cover the more common applications only. For other sizing methods, refer to BS EN 1825 Part 2 or contact the ACO Building Drainage Estimating Team on 01462 810421 or email [abdestimating@aco.co.uk](mailto:abdestimating@aco.co.uk)

**Note:** An on-line grease separator sizing tool is available on: <https://www.aco.co.uk/buy-grease-solutions>

### Step 1 - Select FOG density

Common FOG densities are:

NS	Heating rod	Flow rate	Total capacity	Weight empty	Product No.
Animal fat	0.85-0.94	Sesame oil	0.92	Corn oil	0.92
Butter fat	0.91	Sunflower oil	0.92-0.93	Fish oil	0.89-0.94
Coconut oil	0.92-0.93	Vegetable oil	0.95-0.97	Olive oil	0.91

### Step 2 - Select kitchen type

The table below details various types of kitchen, as listed in BS EN 1825.

Kitchen Type	Description	Typical kitchen characteristics
<b>A</b>	<b>Hotel</b> <ul style="list-style-type: none"> <li>• High variety of meals available</li> <li>• à la carte menu</li> </ul>	<ul style="list-style-type: none"> <li>• Market fresh produce</li> </ul>
<b>B</b>	<b>Restaurant</b> <ul style="list-style-type: none"> <li>• Average variety of meals available</li> <li>• Individual preparation of food with prepared cooking processes</li> </ul>	<ul style="list-style-type: none"> <li>• Market fresh, partly prepared produce</li> </ul>
<b>C</b>	<b>Hospital, clinics, care homes</b> <ul style="list-style-type: none"> <li>• Few main menus (2-4)</li> <li>• Prepared in large food containers</li> <li>• Many forms of special foods in small food containers</li> </ul>	<ul style="list-style-type: none"> <li>• Prepared, partly market fresh produce</li> </ul>

**Step 1 - Select kitchen type (continued)**

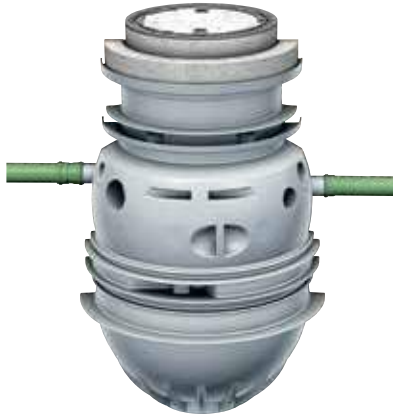
Kitchen Type	Description	Typical kitchen characteristics
D	<b>Large catering establishment</b> (24h operation)	<ul style="list-style-type: none"> <li>• Market fresh produce, large proportion of canned food</li> <li>• Few menus per day (1-2)</li> <li>• Prepared in few, large food containers</li> </ul>
E	<b>Factory and office, canteens, student refectory</b>	<ul style="list-style-type: none"> <li>• Market fresh, partly prepared produce</li> </ul>

**Step 3 - Calculate nominal size of Gravity Grease, based on meals / day**

3.1	Select kitchen type (See table in step 2)	Typical kitchen characteristics					Worked Example (Kitchen Type B selected)
		A	B	C	D	E	
3.2	Calculate meals per day where 1 meal = 1 restaurant cover						= 260
3.3	Multiply by: Water volume per meal in litres as stated in BS EN 1825	x 100	x 50	x 20	x 10	x 5	x50  =13,000
3.4	Multiply by: Peak flow coefficient as stated in BS EN 1825	x 5	x 8.5	x 13	x 22	x 20	x8.5  =110,500
3.5	Multiply by: Temperature at inlet °C	<ul style="list-style-type: none"> <li>• x1.0 if temperature &lt;60°C (most cases)</li> <li>• 1.3 ONLY if temperature is &gt;60°C</li> </ul>					x1.0  =110,500
3.6	Multiply by: Factor for detergents, dishwasher powders and rising agents	<ul style="list-style-type: none"> <li>• If never used, go to stage 3.7</li> <li>• x1.3 if occasionally used (most cases)</li> <li>• x1.5 of special circumstances (e.g. hospital)</li> </ul>					x1.3  =143,650
3.7	Multiply by: Factor for fat/oil density in g/cm³	<ul style="list-style-type: none"> <li>• x 1.0 if density &lt;0.94g/cm³ (most cases)</li> <li>• x1.5 only if density &gt; 0.94g/cm³ ,otherwise go to stage 8</li> </ul>					Olive oil is mainly used therefore x1.0  =143,650
3.8	Establish average daily kitchen operation in seconds (3600 seconds per hour)						11 hours x 3600  =39,600
3.9	Take answer from stage 3.7 and divide answer from stage 3.8						143,650 39,600
3.10	Round up to available NS size Sizes available up to NS 10						3.63 round up to NS 4



## ACO Below Ground Grease Separators - Product Overview



### LipuMax, (pages 9-17):

- Designed, tested and certified according BS EN 1825.
- LipuMax grease separators are made from roto-moulded polyethylene resulting in a compact construction.
- Ribbed construction of the main separator prevents buoyancy in high water table.
- 50 year warranty on structural stability of the container.
- Top sections with load class A15, B125 and D400 according to BS EN 124.
- Inlet and outlets for connections to plastic pipe.



### ECO - FPI, (pages 18-19):

- Nominal sizing in line with BS EN 1825
- ECO - FPI grease separators are made out of spiral wound, twin-walled, High Density polyethylene (HDPE) for ultimate strength.
- Concrete anchor flanges prevent buoyancy in high water table locations.
- Load class D400 single sealed cast iron access cover with concrete cover plate.
- Available with Ø110 or Ø160mm inlet/outlet spigots, with integrated sampling station in outlet.



## LipuMax-P - Technical Data

### LipuMax-P-B (Basic model)

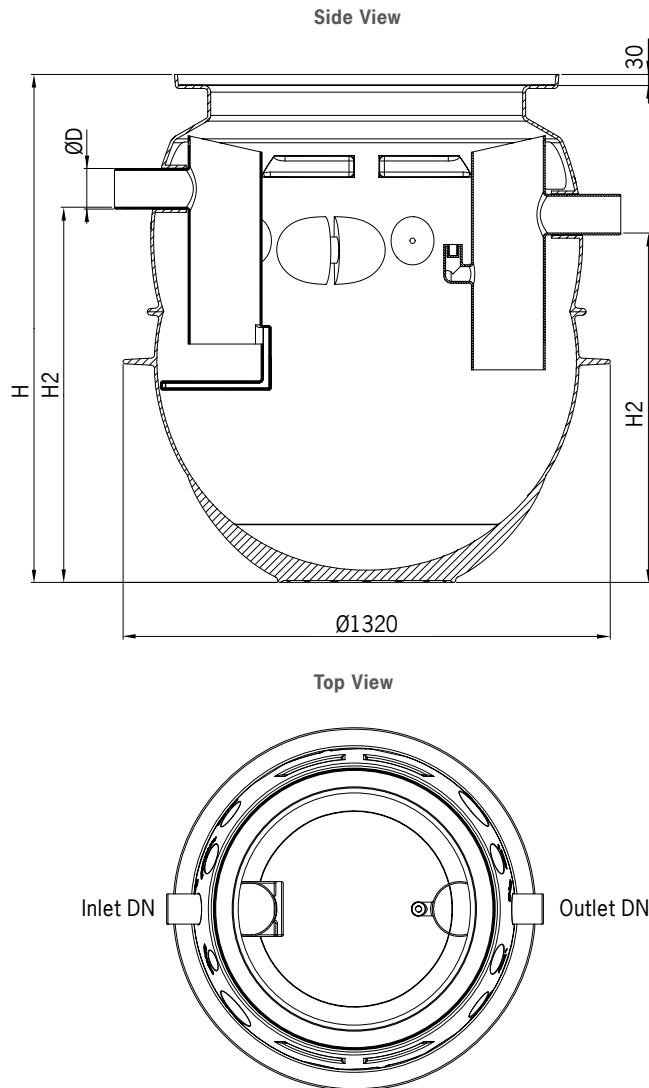


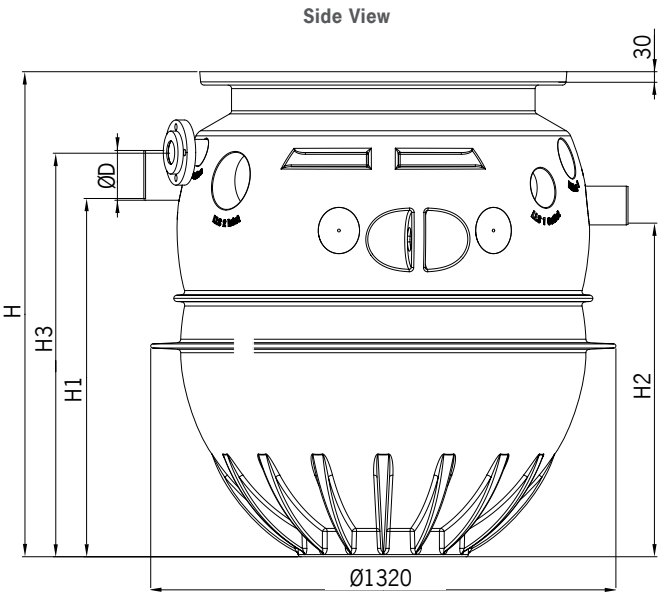
Table of dimensions

NS	DN	Sludge trap	Contents [l] Grease storage volume	Total	Dimensions [mm]					Dry weight [kg]	Part No
					D	H	H1	H2	H3		
2*	100	245	270	720	110	1377	1015	945	1147	63	105408
4*	100	460	270	930	110	1594	1235	1165	1364	79	105416
5.5*	150	570	230	1465	160	2129	1745	1675	1899	93	105417
7	150	730	285	1675	160	2346	1960	1890	2116	108	105418
8.5	150	860	360	1900	160	2558	2172	2102	2328	115	105419
10	150	1010	415	2170	160	2828	2443	2373	2598	125	105420

\*Also available with double sludge capacity for meat processing applications

LipuMax-P - Technical Data

LipuMax-P-D (Extension stage 1)



Top View

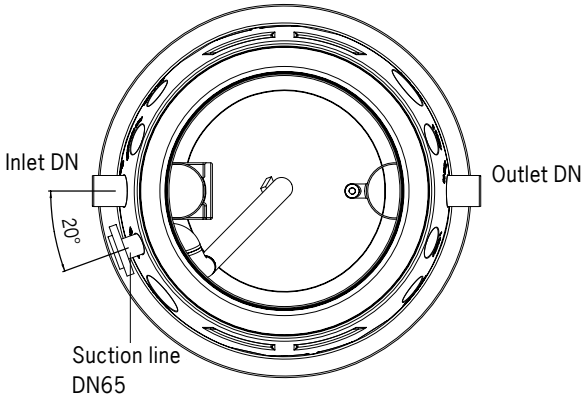


Table of dimensions

NS	DN	Sludge trap	Contents [l] Grease storage volume	Total	Dimensions [mm]					Dry weight [kg]	Part No
					D	H	H1	H2	H3		
2*	100	245	270	720	110	1377	1015	945	1147	66	108400
4*	100	460	270	930	110	1594	1235	1165	1364	81	108401
5.5*	150	570	230	1465	160	2129	1745	1675	1899	95	108402
7	150	730	285	1675	160	2346	1960	1890	2116	111	108403
8.5	150	860	360	1900	160	2558	2172	2102	2328	118	108404
10	150	1010	415	2170	160	2828	2443	2373	2598	128	108405

\*Also available with double sludge capacity for meat processing applications

## LipuMax-P - Technical Data

### LipuMax-P-DM (Extension stage 2)

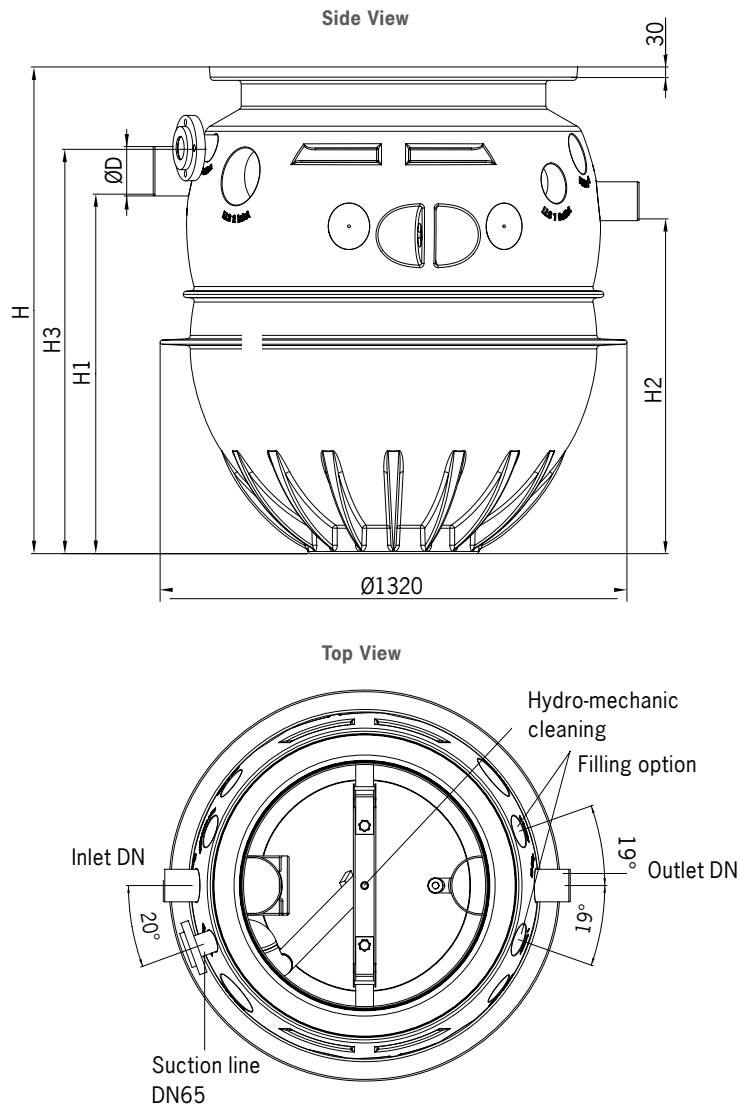
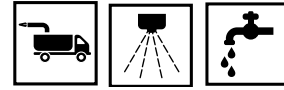
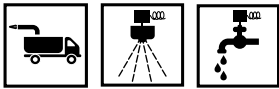


Table of dimensions

NS	DN	Sludge trap	Contents [l] Grease storage volume	Total	Dimensions [mm]					Dry weight [kg]	Part No
					D	H	H1	H2	H3		
2*	100	245	270	720	110	1377	1015	945	1147	119	108406
4*	100	460	270	930	110	1594	1235	1165	1364	134	108407
5.5*	150	570	230	1465	160	2129	1745	1675	1899	148	108408
7	150	730	285	1675	160	2346	1960	1890	2116	164	108409
8.5	150	860	360	1900	160	2558	2172	2102	2328	171	108410
10	150	1010	415	2170	160	2828	2443	2373	2598	181	108411

\*Also available with double sludge capacity for meat processing applications

LipuMax-P - Technical Data



LipuMax-P-DA (Extension stage 3)

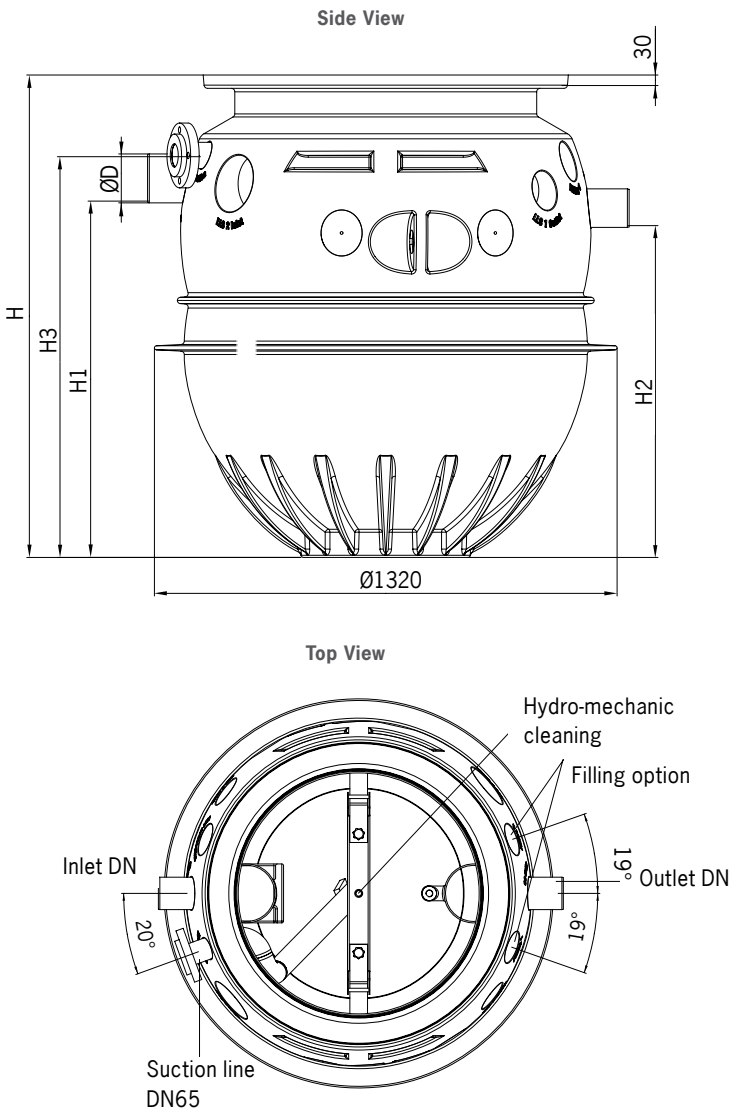


Table of dimensions

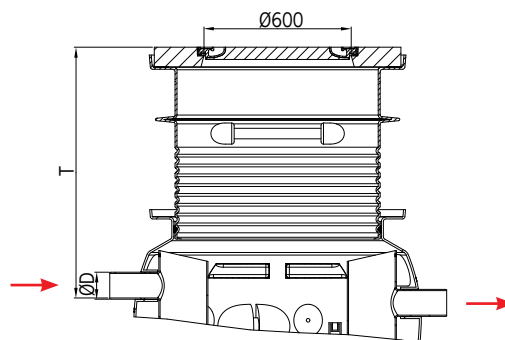
NS	DN	Sludge trap	Contents [l] Grease storage volume	Total	Dimensions [mm]					Dry weight [kg]	Part No
					D	H	H1	H2	H3		
2*	100	245	270	720	110	1377	1015	945	1147	123	108412
4*	100	460	270	930	110	1594	1235	1165	1364	138	108413
5.5*	150	570	230	1465	160	2129	1745	1675	1899	152	108414
7	150	730	285	1675	160	2346	1960	1890	2116	168	108415
8.5	150	860	360	1900	160	2558	2172	2102	2328	175	108416
10	150	1010	415	2170	160	2828	2443	2373	2598	185	108417

\*Also available with double sludge capacity for meat processing applications

## ACO LipuMax P - Top Section

### Top Section Load Class A15

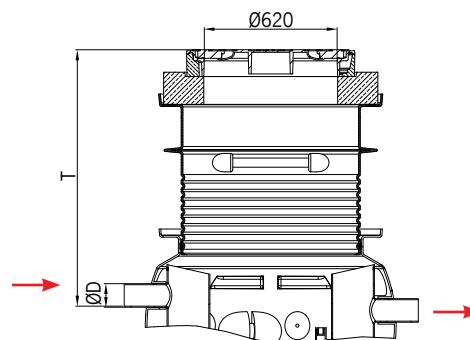
- Load Class A15 access cover to BS EN 124
- 600mm clear opening access cover, single EPDM seal
- Concrete frame, cast iron cover
- Variable inlet invert position achieved by on-site trimming of sealed MDPE raising tube (supplied with options 105411 and 105412 only)



	NS 2 ST 200	NS 2 ST 400	NS 4 ST 400	NS 4 ST 800	NS 5.5 ST 550	NS 5.5 ST 1100	NS 7 ST 700	NS 8.5 ST 850	NS 10 ST 1000	Weight [kg]	Part No [grey]
T [mm]	420	420	420	420	445	445	445	445	445	145	<b>105410</b>
	720-1020	720-1020	720-1020	720-1020	745-1045	745-1045	745-1045	745-1045	745-1045	170	<b>105411</b>
	720-1985	720-1985	720-1985	720-1985	745-1855	745-1985	745-1640	745-1640	745-1640	193	<b>105412</b>

### Top Section Load Class B125

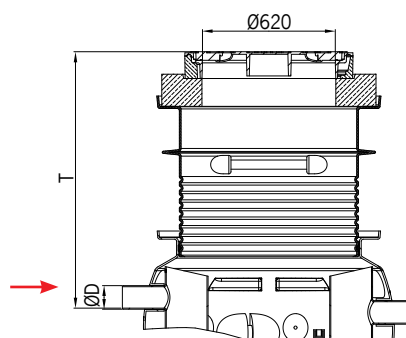
- Load Class B125 access cover to BS EN 124
- 600mm clear opening access cover, single EPDM seal
- Concrete frame, cast iron cover
- Concrete adaptor plate Ø1000mm x 150mm deep
- Variable inlet invert position achieved by on-site trimming of sealed MDPE raising tube (supplied with options 105413 and 105414 only)



	NS 2 ST 200	NS 2 ST 400	NS 4 ST 400	NS 4 ST 800	NS 5.5 ST 550	NS 5.5 ST 1100	NS 7 ST 700	NS 8.5 ST 850	NS 10 ST 1000	Weight [kg]	Part No [grey]
T [mm]	585	585	585	585	610	610	610	610	610	282	<b>105409</b>
	885-1195	885-1195	885-1195	885-1195	910-1220	910-1220	910-1220	910-1220	910-1220	307	<b>105413</b>
	885-1985	885-1985	885-1985	885-1985	910-1855	910-1855	910-1640	910-1640	910-1640	330	<b>105414</b>





### Top Section Load Class D400

- Load Class D400 access cover to BS EN 124
- 600mm clear opening access cover, single EPDM seal
- Concrete frame, cast iron cover
- Concrete adaptor plate Ø1000mm x 150mm deep
- Variable inlet invert position achieved by on-site trimming of sealed MDPE raising tube
- Concrete load distribution plate Ø1500mm x 200mm deep to reduce on-site slab reinforcement - not available in the UK, please call 01462 810421 or email [abdestimating@aco.co.uk](mailto:abdestimating@aco.co.uk) for construction details.










	NS 2 ST 200	NS 2 ST 400	NS 4 ST 400	NS 4 ST 800	NS 5.5 ST 550	NS 5.5 ST 1100	NS 7 ST 700	NS 8.5 ST 850	NS 10 ST 1000	Weight [kg]	Part No [grey]
T [mm]	865-1985	865-1985	865-1765	865-1765	890-1855	890-1855	890-1640	890-1640	890-1640	330	<b>105415</b>

## Optional system components

	Designation	To fit	Description	Part No
	Sampling shaft 450 DN 100	<ul style="list-style-type: none"> <li>■ LipuMax-P grease separators for below ground installation</li> <li>□ NS 2 – 4</li> </ul>	<ul style="list-style-type: none"> <li>■ Made from plastic, material polyethylene</li> <li>■ With concrete-cast iron cover</li> <li>□ Clear width: 450 mm</li> <li>□ Load class: B 125 or D 400 (with in-situ load distribution plate)</li> <li>■ Odour-proof</li> <li>■ Weight: 128 kg</li> <li>■ Inlet invert T</li> <li>□ 440 – 1120 mm for B 125</li> <li>□ 540 – 1420 mm for D 400</li> </ul> <p>Gradient: 153 mm H = 258 mm</p> <p>Gradient: 33 mm H = 138 mm</p>	<p><b>108418</b></p> <p><b>108419</b></p>
	Sampling shaft 450 DN 150	<ul style="list-style-type: none"> <li>■ LipuMax-P grease separators for below ground installation</li> <li>□ NS 5.5 – 10</li> </ul>	<ul style="list-style-type: none"> <li>■ Made from plastic, material polyethylene</li> <li>■ With concrete-cast iron cover</li> <li>□ Clear width: 450 mm</li> <li>□ Load class: B 125 or D 400 (with in-situ load distribution plate)</li> <li>■ Odour-proof</li> <li>■ Weight: 128 kg</li> <li>■ Inlet invert T</li> <li>□ 440 – 1120 mm for B 125</li> <li>□ 540 – 1420 mm for D 400</li> </ul> <p>Gradient: 159 mm H = 239 mm</p> <p>Gradient: 75 mm H = 155 mm</p>	<p><b>108420</b></p> <p><b>108421</b></p>
	Extension 450	<ul style="list-style-type: none"> <li>■ Sampling shafts</li> </ul>	<ul style="list-style-type: none"> <li>■ Made from plastic, material polyethylene</li> <li>■ For fitting on upstream sampling shaft for deep installations</li> <li>■ Extension height: 100 – 650 mm (can be reduced by 45 mm each time by separating at cutting marks)</li> <li>■ Maximum of two extensions possible per shaft system</li> <li>■ Weight: 12 kg</li> </ul>	<b>108422</b>
	Disposal shaft 450	<ul style="list-style-type: none"> <li>■ Grease separators for below ground installation</li> <li>□ LipuMax-P-D</li> <li>□ LipuMax-P-DM</li> <li>□ LipuMax-P-DA</li> </ul>	<ul style="list-style-type: none"> <li>■ Made from plastic, material polyethylene</li> <li>■ With concrete-cast iron cover</li> <li>□ Clear width: 450 mm</li> <li>□ Load class: B 125 or D 400 (with in-situ load distribution plate)</li> <li>■ Weight: 120 kg</li> <li>■ Installation height: 1500 mm</li> </ul>	<b>108423</b>

\*If concrete load distribution plate required, please call ACO Enquiries on 01462 810421

	Designation	To fit	Description	Part No
	Extension	■ Disposal shaft	<ul style="list-style-type: none"> <li>■ Made from plastic, material polyethylene</li> <li>■ For fitting on upstream</li> <li>■ sampling shaft for deep installations</li> <li>■ Extension height: 100 – 650 mm (can be reduced by 45 mm each time by separating at cutting marks)</li> <li>■ Weight: 12 kg</li> </ul>	<b>108424</b>
	Sampling pump	LipuMax - P	<ul style="list-style-type: none"> <li>■ Allows easy collection of samples from sampling shaft.</li> <li>■ Complete with manual pump, suction coupling and connecting hose.</li> <li>■ Suitable for maximum inlet invert 3000mm.</li> <li>■ Weight: 2.4kg</li> </ul>	<b>108425</b>
	High pressure hose	LipuMax - P-DM and P-DA	<ul style="list-style-type: none"> <li>■ Connects high pressure pump to internal cleaning head in separator body.</li> </ul> <p>Hose length: 10m, Weight: 10 kg Hose length: 20m, Weight: 19 kg Hose length: 10m, Weight: 10 kg</p>	<b>108426</b> <b>108427</b> <b>108428</b>
	Wall mounted connection box	LipuMax - P-D and P-DM	<ul style="list-style-type: none"> <li>■ Manufactured from 304 grade stainless steel to house remote disposal connection.</li> <li>■ Size: 370(W) x 330(H) x 250(D)mm</li> <li>■ Weight: 7.9kg</li> </ul>	<b>108429</b>
	Flush mounted frame	LipuMax - P-D and P-DM	<ul style="list-style-type: none"> <li>■ For use with wall mounted connection box 108429</li> <li>■ Manufactured from 304 grade stainless steel.</li> <li>■ Size: 421(W) x 381(H) x 25(D)mm</li> <li>■ Weight: 1.1 kg</li> </ul>	<b>108430</b>
	Wall mounted connection box	LipuMax - P-DA	<ul style="list-style-type: none"> <li>■ Manufactured from 304 grade stainless steel to house remote disposal connection.</li> <li>■ Size: 500(W) x 500(H) x 160(D)mm</li> <li>■ Weight: 15kg</li> </ul>	<b>108431</b>
	Flush mounted frame	LipuMax - P-DA	<ul style="list-style-type: none"> <li>■ For use with wall mounted connection box 108431</li> <li>■ Manufactured from 304 grade stainless steel.</li> <li>■ Size: 565(W) x 565(H) x 15(D)mm</li> </ul>	<b>108432</b>

\*If concrete load distribution plate required, please call ACO Enquiries on 01462 810421



## ACO Lipumax P Product Range - Accessories

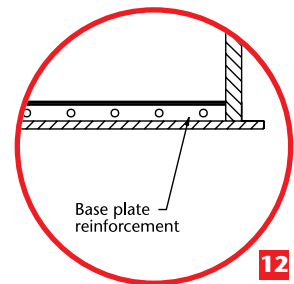
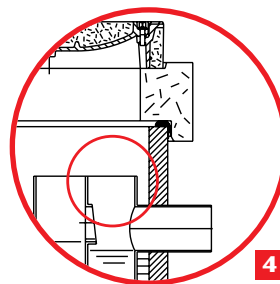
	Designation	To fit	Description	Part No
	Disposal tanker adaptor	LipuMax - P-D, P-DM and PD-A	<ul style="list-style-type: none"> <li>■ Storz 75-B to Bauer 3" male connector adaptor set with clamp.</li> <li>■ Weight: 2.5 kg</li> </ul>	<b>105860</b>
	Vent sealing ring	LipuMax - P	<ul style="list-style-type: none"> <li>■ Allows sealing of Ø110mm vent connections to separator body (if required).</li> <li>■ Weight: 0.2 kg</li> </ul>	<b>108433</b>
	Measuring device for grease layer thickness	<ul style="list-style-type: none"> <li>■ LipuMax-P grease separators for below ground installation</li> </ul>	<ul style="list-style-type: none"> <li>■ For electronic measurement of grease layer</li> <li>■ Suitable for liquid and/or congealing grease</li> <li>■ Measuring device with connecting cable ready to plug in, length: 3 m</li> <li>■ With two isolated change-over contacts to display full warning (100%) and advance warning of fill level (80%)</li> <li>■ With visual display of fill level for advance warning and full warning</li> <li>■ With heated probe rod to increase operating reliability</li> <li>■ Operating voltage: 230 V/50 Hz</li> <li>■ Max. consumption approx. 12 W</li> </ul> <p>Cable length: 10 metres</p> <p>Cable length: 20 metres</p> <p>Cable length: 30 metres</p>	<b>108434</b>       <b>108435</b>       <b>108436</b>
	Signalling unit with GSM module	<ul style="list-style-type: none"> <li>■ Grease separators extension stage 3</li> <li>■ Measuring equipment for grease layer thickness</li> </ul>	<ul style="list-style-type: none"> <li>■ Mains-independent</li> <li>■ Visible and audible alarm signals</li> <li>■ 6 digital &amp; 2 analogue freely configurable inputs</li> <li>■ 1 alarm output 12 V</li> <li>■ Includes GSM antenna (2.5 m cable)</li> <li>■ Relaying alarms to mobile phones by SMS</li> <li>■ For mounting outside the ex area</li> <li>■ Housing: 155 x 180 x 103 mm</li> <li>■ Slot for standard SIM card</li> <li>■ Protection type: IP 54 (with mounted antenna plug IP 44)</li> <li>■ Operating voltage: 230 V/AC 50/60 Hz</li> </ul>	<b>108437</b>

	Designation	To fit	Description	Part No
	Supporting ring	<ul style="list-style-type: none"> <li>■ LipuMax-P grease separators for below ground installation</li> <li>□ Load class: B125/D400</li> </ul>	<ul style="list-style-type: none"> <li>■ Made from concrete</li> <li>■ Diameter: 625 mm</li> <li>■ Without sealing</li> <li>■ Displacement-proof</li> </ul>	
			<p>Heights: 60 mm excluding mortar joints 70 mm including mortar joints Weight: 50 kg</p>	<b>108438</b>
			<p>Heights: 80 mm excluding mortar joints 90 mm including mortar joints Weight: 60 kg</p>	<b>108439</b>
	Pre Strainer	<ul style="list-style-type: none"> <li>■ All grease separators</li> </ul>	<p>Heights: 100 mm excluding mortar joints 110 mm including mortar joints Weight: 70 kg</p>	<b>108440</b>
			<ul style="list-style-type: none"> <li>■ For installation in horizontal pipelines upstream from separator.</li> <li>■ Material: PE</li> <li>■ With stainless steel basket</li> </ul>	
			<p>DN100 NS 1 - 4 Weight: 13.9 kg</p>	<b>108448</b>
			<p>DN150 NS 5.5 - 10 Weight: 14.2 kg</p>	<b>108449</b>
			<p>DN200 NS 15 - 20 Weight: 14 kg</p>	<b>108450</b>

## ACO ECO-FPI Product Range Overview - Features and Benefits



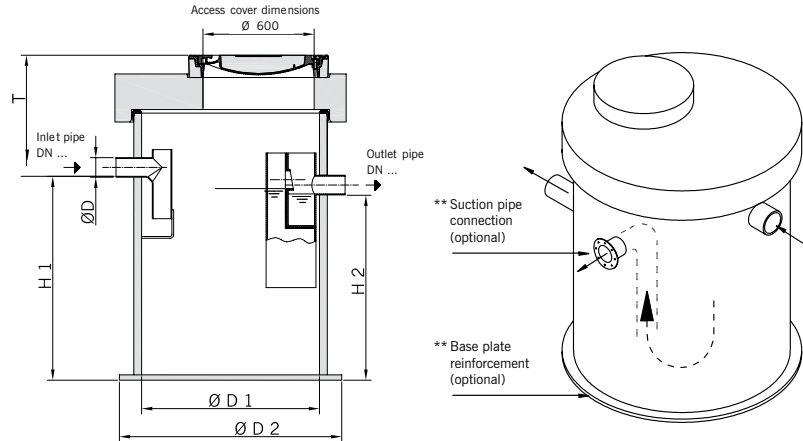
- 1** Load Class D400 single sealed cast iron access cover with concrete cover plate and 600mm clear opening for easy servicing access.
- 2** Lifting hooks cast in to assist handling on site.
- 3** Separator assembly is a structural element in its own right accommodating D400 Load Class without additional concrete support or reinforcement. Maximum installation speed with minimal installation cost.
- 4** Available with Ø110mm or Ø160mm inlet/outlet spigots. Integrated sampling station in outlet.
- 5** Robust construction withstands site handling, concrete pour and groundwater pressures.
- 6** Flat base ensures high stability during site movement, storage and installation.
- 7** Concrete anchor flanges prevent buoyancy in high water table locations.
- 8** Optional factory fitted direct built-in suction pipe connection for odourless contents disposal.
- 9** Lightweight body construction for easy handling.
- 10** Highly corrosion resistant spiral-wound twin-walled High-Density Polyethylene (HDPE) construction for the ultimate in strength.
- 11** Available with fine and course adjustment raising rings.
- 12** Optional factory fitted base plate reinforcement for installations where water table exceeds 1m above separator baseplate.



### NBS Specification Clause Reference

For relevant NBS specification, refer to NBS section R12 Below Ground Drainage, Clause 630 Grease Traps/Converters and insert the appropriate model reference.

## ACO ECO-FPI - Technical Data



Nominal size	Sludge storage volume (l)	Grease storage volume (l)	Total capacity (l)	H1 (mm)	H2 (mm)	ØD (mm)	ØD1 (mm)	ØD2 (mm)	T
NS 1	100	120	615	885	785	110	1000	1250	695
NS 1*	200	120	715	1010	910	110	1000	1250	570
NS 2	200	120	715	1010	910	110	1000	1250	570
NS 2*	400	120	915	1265	1165	110	1000	1250	560
NS 3	300	120	815	1140	1040	110	1000	1250	685
NS 3*	600	120	1115	1520	1420	110	1000	1250	815
NS 4	400	120	915	1265	1165	110	1000	1250	560
NS 4*	800	120	1315	1775	1675	110	1000	1250	560
NS 7	700	120	1950	1205	1105	160	1500	1800	650
NS 7*	1400	120	2660	1605	1505	160	1500	1800	650
NS 10	1000	120	2250	1370	1270	160	1500	1800	685
NS 10*	2000	120	3250	1940	1840	160	1500	1800	665

\*Double sludge capacity models available for meat processing application

\*\*For factory fitted suction pipe connection or basement reinforcement models please contact ACO Enquiries team on 01462 810421 or email:

abdestimating@aco.co.uk

## ACO ECO-FPI Product Range - Accessories

Product	Description	Dimensions	Weight (kg)	Part No
	<b>Fine adjustment raising ring</b> Can only be used up to a maximum of 200mm. For greater depth, use coarse adjustment raising ring shown below	Ø865 x 60mm	50	700821
		Ø865 x 80mm	60	700822
		Ø865 x 100mm	70	700823
	<b>Coarse adjustment raising ring</b> For use with ECO-FPI nominal size separators 1, 2, 3, & 4	Ø1000 x 250mm	240	700904
		Ø1000 x 500mm	500	700906
		Ø1000 x 1000mm	1000	700907
	<b>Coarse adjustment raising ring</b> For use with ECO-FPI nominal size separators 7 & 10	Ø1500 x 250mm	480	700913
		Ø1500 x 500mm	931	700915

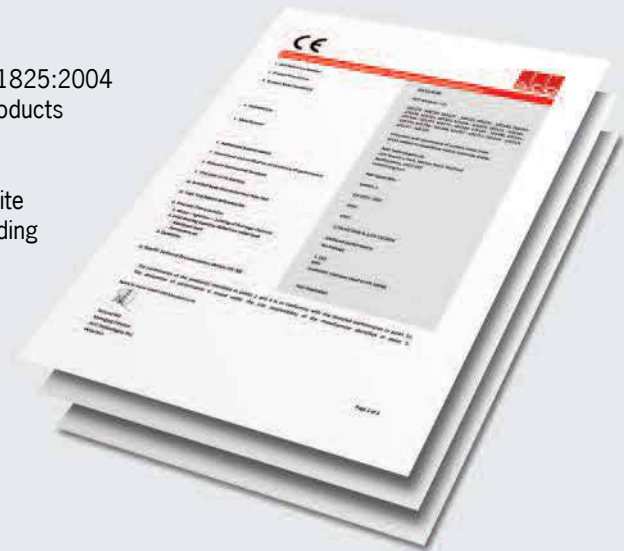
## Model Specification Clause

All ACO Building Drainage grease separators are NBS specified products. Assistance in completing this clause can be found in ACO Technologies product entries in NBS Plus or a model specification can be downloaded from [www.aco.co.uk](http://www.aco.co.uk)

## EU Conformity

All ACO Grease Separators are fully certified to BS EN 1825:2004 and CE marked in accordance with the Construction Products Regulation.

Declarations of Performance are available via our website [www.aco.co.uk](http://www.aco.co.uk) or on request, please contact ACO Building Drainage Design Services Team on 01462 810431 for further information.



### Operation, Maintenance and Accessories

#### General Information

All Gravity Grease Separators require periodic maintenance to remove the fats, oils and grease (FOG) together with sludge deposits that have been separated from the waste water. Such maintenance is usually undertaken by a specialist waste contractor.



The frequency of maintenance will depend on the volume of FOGs and the volume of sludge that is generated in the food production process. Sludge volume can be significantly reduced by effective use of strainers on sink outlets.

Note. Only waste water containing organic FOG should be discharged to a grease separator. Effluent from the following should NOT be connected to the separator:

- Toilets
- Macerators
- Rainwater
- Light liquids e.g. grease or oil of mineral origin

Macerators have the effect of artificially consuming the sludge capacity of the separator and thereby shortening the service interval to the separator.

Additionally, under certain conditions, the process of maceration can emulsify waste products and prevent them from separating via the natural gravity process, thereby reducing the separation efficiency of the unit.

#### Start Up and System Characterization

Before using the separator for the first time, fill with clean water. When first commissioned, it is recommended that the separator is emptied, cleaned and refilled ideally every 2 weeks, or on a monthly basis in order to assess volumes of separated matter for that installation. It is recommended to empty grease separator at least every 4 weeks to prevent FAT to harden and not break down. When the separator is emptied, fill with clean water to immediately allow the separation process to continue. The waste disposal contractor should be able to recommend the optimum servicing frequency.

Thick encrustations of FOG residues can form within the separator body and may therefore require vigorous cleaning methodologies to remove them during the cleaning process.

#### Disposal

Sludge traps and separators must be completely emptied and cleaned at least once a month, preferably every two weeks. The separators must subsequently be refilled with water (e.g. drinking water, processed water, treated water from the grease separator), which corresponds with the local inlet regulations.

#### Operating log

An operating log should be maintained for each grease separator. The following should be entered in the log: completed inspections, maintenance, checks and disposals. The operating logs should be stored by the operator and should be presented to the locally responsible authority upon request.

#### Maintenance

The separator must be maintained annually by a competent person according to the manufacturer's specifications.

## Associated ACO Building Drainage Product Ranges

### ACO Grease Separators - Above Ground

ACO's range of above ground, gravity grease separators (LipuJet) come in oval and round shapes to suit the area in which they will be placed. The LipuJet series are produced from roto-moulded or sheet polyethylene, but can also be supplied in stainless steel 316. All LipuJet grease separators are tested and certified in accordance with BS EN 1825. There are 4 levels of features and automation available to remove waste water from, clean and fill

the separator. Standard the LipuJet grease separators are available from NS1 to NS30 but ACO can supply grease separators for kitchens with higher flow rates. When the separator is installed below street level a lifting station should be used to pump the waste towards the sewer. The new ACO LipuSmart is an integrated grease separator complete with lifting station and sampling pot. The LipuSmart also comes in different feature/automation levels and size ranges from NS2 to NS10.



### ACO Modular 125+

ACO Modular 125 Stainless Steel linear drainage is out most requested product range as it is suitable for most applications. ACO modular 125 is manufactured in stainless steel grade 304 as standard and 316 top order. available in a wide range of lengths, constant depths, sloping inverts and gratings 'off the shelf', it can be modified to meet your exact application requirements. Used together with ACO Gully 157 or 218 and ACO Pipe®

it offers the specifier, contractor and user the benefits of a unified system for building drainage and one stop drainage solution with unique advantages - fully tested and classified to BS EN 1433, CE marked, pickle passivated for optimum durability and corrosion resistance, vee-bottomed profiled channel for enhanced flow efficiency, optional grating security locks and lightweight channel sections for sale and easy installation.



### ACO Pipe®

ACO Pipe® is manufactured from thin-wall austenitic stainless steel in grades 304 and 316 and is pickle passivated for optimum durability and corrosion resistance. ACO Pipe® is available in a wide range of socketed waste pipework products and accessories for above and below ground rainwater and industrial wastewater drainage applications.

Used together with other ACO products it creates a perfect system and one stop sustainable drainage solution with unique advantages to the customer - lightweight, easy installation, low thermal expansion co-efficient, sustainable material, hygienic, near zero maintenance. When used with ACO stainless steel gullies and channel systems it provides a unique system for building drainage.





## ACO Engineered Solutions

ACO Engineered Solutions offer the designer / specifier a range of products virtually free from the constraints of 'off the shelf' items. Our engineers are able to offer detailed advice on all aspects of required design solutions, together with hydraulic flow analysis, practical site installation, suitable materials and best practices. ACO engineered solutions enjoy rigorous product management from initial enquiry through to post-delivery.

Examples of ACO Engineered Solution applications include:

- Workable drainage where there is limited invert depths
- Refurbishment situations with replacement channels and point drainage
- Interface with threshold details
- Discreet channel applications
- Radius channel applications



## ACO Product Overview

ACO Building Drainage specialises in the development of corrosion resistant drainage systems and building products for applications across the internal and external built environments. Engineered to eliminate design risk, to optimise installation and to minimise lifetime ownership cost, every product in the range delivers exceptional levels of performance, finish and durability. Providing specialist drainage, grease management and fire-proofing systems that provide safe and hygienic solutions across a range of sectors including hospitals, chemical production, food and drink manufacture, leisure centres, laboratories and catering facilities, ACO Building Drainage has had unparalleled success over a number of years. In addition ACO provide stainless steel decorative tree grills, laser cut curved gratings and wet room drainage

systems to complement settings that demand the highest aesthetic finish. Our built environment is becoming ever more complex. Applications are becoming more sophisticated and the increasing pressure of regulations and standards make achieving design, performance and financial goals ever tougher.

The technical expertise, global resources and fabrication capacity within the ACO Building Drainage division make it possible for architects, engineers and contractors to realise the highest quality and value when selecting from our standard products, or, when using our engineered solution design service. ACO Building Drainage is a Division of the UK based ACO Technologies plc and part of the worldwide ACO Group.



## ACO Technologies plc

- ACO Building Drainage
- ACO Water Management  
Civils + Infrastructure  
Urban + Building Landscape
- ACO Sport
- ACO Wildlife



### ACO Building Drainage

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**The ACO Group: A strong family you can depend on.**

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